We claim:

1. A method of determining a beam to be generated for transmitting information to a user, comprising:

selecting a user from a user population based on a parameter that is tracked for each user in the user population; and

determining a preferred beam to be generated for the selected user.

2. The method of claim 1, wherein the tracked parameter is a waiting time for each user that represents a duration of time since the user has received its last packet.

3. The method of claim 2, wherein the selecting step further includes:

initializing a timeslot counter, for a given timeslot,

emptying an exclusion window, the exclusion window configured for preventing a beam from continually illuminating a user having poor channel conditions; and

searching, at the beginning of the given timeslot, the user population for the longest waiting user that is outside the exclusion window.

4. The method of claim 3, wherein the steps of searching and determining may be iteratively repeated to determine a preferred beam to be generated for the longest waiting user in each timeslot.

5. The method of claim 1, wherein the tracked parameter is a short term throughput for each user calculated using a filtering process that is dictated by a given application.

6. The method of claim 1, wherein the tracked parameter is a short term throughput normalized by a long term throughput for each user, the short term throughput calculated based on a given application.

7. The method of claim 1, wherein the determining step includes determining the preferred beam to be generated based on past information received from the selected user.

8. The method of claim 7, wherein the determining step includes, for a given timeslot:

determining a running average data rate for each beam of a finite plurality of selectable beams based on past reports that, for each beam, have been previously received from the selected user, and

selecting a beam having the highest running average data rate as the preferred beam.

9. The method of claim 1, further comprising updating information for determining a preferred beam for a given user in a current timeslot based on information used for determining the preferred beam in the previous timeslot.

10. A method of scheduling a user for receiving a transmission, comprising:

selecting a user from a user population based on a parameter that is tracked for each user in the user population;

generating a preferred beam for the selected user; and

scheduling a user in the user population to receive a next transmission, based on the preferred beam.

11. The method of claim 10, wherein the step of generating further includes:

determining a running average data rate for each beam of a finite plurality of selectable beams based on past reports that, for each beam, have been previously received from the selected user, and

selecting a beam having the highest running average data rate as the preferred beam.

12. The method of claim 10, wherein the step of scheduling further includes:

transmitting a pilot signal to the user population using the preferred beam;

receiving feedback from each user of the user population, the feedback including information relates to a maximum supportable data rate for the user; and

running a scheduling algorithm to prioritize the user population for receiving a next transmission in a current timeslot.

13. The method of claim 12, wherein the selected user has been moved up in priority to receive the next transmission based on its feedback, the selected user's maximum supportable data rate corresponding to the preferred beam.

14. The method of claim 10, wherein

the tracked parameter is a waiting time for each user that represents a duration of time since the user has received its last packet, and

the selected user is the longest waiting user.

15. The method of claim 10, wherein

the tracked parameter is a short term throughput normalized by a long term throughput for each user and calculated as a ratio of the short term throughput to the long term throughput, and

the selected user is the user having the lowest ratio.

16. A method of transmitting information to a user, comprising:

selecting a user from a user population based on a parameter that is tracked for each user in the user population;

generating a preferred beam for the selected user;

transmitting a pilot signal to the user population using the preferred beam;

scheduling a user based on feedback received in response to the pilot signal; and

transmitting information on the preferred beam to the scheduled user.

17. The method of claim 16, wherein the step of generating further includes:

determining a running average data rate for each beam of a finite plurality of selectable beams based on past reports that, for each beam, have been previously received from the selected user, and

selecting a beam having the highest running average data rate as the preferred beam.

18. The method of claim 17, wherein generating the preferred beam is designed to enhance the selected user's priority to receive the next transmission based on maximum supportable data rate information contained in the selected user's feedback.

19. A method of transmitting information to a user, comprising:

(a) initializing, at the beginning of a given timeslot, a timeslot counter and an exclusion window that prevents a beam used for transmitting the information to a given user having poor channel conditions from continually illuminating the user;

(b) searching, within the given timeslot, the user population for a longest waiting user that is outside the exclusion window as a selected user;

(c) generating a preferred beam for the selected user;

(d) receiving reports from each user in the user population in response to a pilot signal transmitted using the preferred beam, each report including a maximum supportable data rates for the user;

(e) running a scheduling algorithm based on the received reports to select a winning user;

(f) transmitting information to the winning user using the preferred beam; and

(g) updating the timeslot counter and exclusion window counter.

20. The method of claim 19, further comprising:

(h) iteratively repeating steps (b) through (g) in subsequent timeslots.

21. The method of claim 19, wherein step (c) further includes:

determining a running average data rate for each beam of a finite plurality of selectable beams based on past reports that, for each beam, have been previously received from the selected user, and

selecting a beam having the highest running average data rate as the preferred beam.

22. The method of claim 19, wherein generating the preferred beam is designed to enhance the selected user's priority to receive the next transmission based on maximum supportable data rate information contained in the selected user's feedback.

23. A method of improving system throughput while reducing packet delay for users of a wireless communication system, comprising:

selecting a user from a user population based on a parameter that is tracked for each user of the user population; and

determining a preferred beam for the user so as to maximize the selected user's chances to be scheduled to receive the next packet, the

preferred beam used for transmitting a pilot signal for scheduling a user in the user population to receive a next transmission on the preferred beam.

24. The method of claim 23, wherein

the tracked parameter is a waiting time for each user that represents a duration of time since the user has received its last packet, and

the selected user is the user having the longest waiting time.

25. The method of claim 23, wherein

the tracked parameter is a short term throughput normalized by a long term throughput for each user and calculated as a ratio of the short term throughput to the long term throughput, and

the selected user is the user having the lowest ratio.

26. The method of claim 23, wherein the determining step includes, for a given timeslot:

determining a running average data rate for each beam of a finite plurality of selectable beams based on past reports that, for each beam, have been previously received from the selected user, and

selecting a beam having the highest running average data rate as the preferred beam.